

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently amended) An optical transceiver module for emitting transmitting light along a predetermined axis and receiving light having propagated along the predetermined axis, said optical transceiver module comprising:

a mount substrate disposed so as to intersect with the predetermined axis and having first and second principal surfaces facing each other;

a transmitting semiconductor laser mounted on the first principal surface and configured to emit light of a first wavelength;

a receiving photodiode mounted on the predetermined axis and on the second principal surface and configured to receive light of a second wavelength;

a communicating hole provided in a region of the mount substrate where the receiving photodiode is mounted, and letting the first and second principal surfaces communicate with each other;

a first filter disposed on the predetermined axis and in a region intersecting with the first principal surface, and

configured to reflect the light of the first wavelength and transmit the light of the second wavelength;

a lens for condensing the transmitting light and the receiving light, said lens being located on the predetermined axis so that the first filter is interposed between the receiving photodiode and the lens; and

a casing for housing the mount substrate;

the casing comprising:

a first casing portion located on the first principal surface side; and

a second casing portion located on the second principal surface side,

wherein the mount substrate is housed in the casing and sandwiched between the first casing portion and the second casing portion, and

wherein the light of the first wavelength having been emitted from the transmitting semiconductor laser and propagating along the first principal surface is reflected by the first filter, condensed by the lens and emitted as the transmitting light along the predetermined axis, and wherein the light of the second wavelength as the receiving light having propagated along the predetermined axis is condensed by the lens, transmitted by the first filter and travels through the communicating hole to be received by the receiving photodiode.

2. (Original) The optical transceiver module according to Claim 1, comprising a monitoring photodiode mounted on the first principal surface of the mount substrate so as to interpose the transmitting semiconductor laser between the first filter and the monitoring photodiode, and configured to receive backward light from the transmitting semiconductor laser.

3. (Currently amended) The optical transceiver module according to Claim 1, comprising a monitoring photodiode mounted on the first principal surface of the mount substrate so as to interpose the first filter between the transmitting semiconductor laser and the monitoring photodiode, and configured to receive light emitted from the transmitting semiconductor laser and transmitted by the first filter, wherein the monitoring photodiode is obliquely mounted on the first principal surface of the mount substrate in a location where a light receiving surface of the monitoring photodiode faces the first filter.

4. (Original) The optical transceiver module according to Claim 1, wherein the receiving photodiode has a backside-illuminated type structure.

5. (Original) The optical transceiver module according to Claim 4, wherein a second filter for shutting out the light of the first wavelength is provided between the receiving photodiode and the second principal surface of the mount substrate.

6. (Original) The optical transceiver module according to Claim 4, wherein the receiving photodiode has a filter layer for absorbing the light of the first wavelength.

7. (Original) The optical transceiver module according to Claim 1, comprising an amplifier mounted on the second principal surface and configured to amplify an electric signal from the receiving photodiode.

8. (Original) The optical transceiver module according to Claim 1, wherein the mount substrate comprises:

a first substrate including the first principal surface and a third principal surface facing the first principal surface;  
and

a second substrate including the second principal surface and a fourth principal surface facing the second principal surface,

wherein the mount substrate is formed by assembling the first and second substrates in a state in which the third and fourth principal surfaces face each other.

9-13. (Cancelled)

14. (Original) The optical transceiver module according to Claim 1, comprising a fit portion provided on the first principal surface side of the mount substrate and configured to hold a ferrule with an optical fiber therein in a fit state.

15. (Currently amended) An optical transceiver module for emitting transmitting light along a predetermined axis and receiving light having propagated along the predetermined axis, said optical transceiver module comprising:

a first mount substrate disposed so as to intersect with the predetermined axis and having first and second principal surfaces facing each other;

a transmitting semiconductor laser mounted on the first principal surface and configured to emit light of a first wavelength;

a communicating hole provided in a region where the predetermined axis intersects with the first mount substrate,

and letting the first and second principal surfaces communicate with each other;

a second mount substrate disposed so as to intersect with the predetermined axis and having third and fourth principal surfaces facing each other;

a receiving photodiode mounted on the predetermined axis and on the third principal surface and configured to receive light of a second wavelength;

a first filter disposed on the predetermined axis and in a region intersecting with the first principal surface, and configured to reflect the light of the first wavelength and transmit the light of the second wavelength;

a lens for condensing the transmitting light and the receiving light, said lens being located on the predetermined axis so that the first filter is interposed between the receiving photodiode and the lens; and

a casing located on the first principal surface side of the first mount substrate, the casing fixing the lens;

wherein the first mount substrate and the second mount substrate are assembled so that the second principal surface faces the third principal surface, the first mount substrate is sandwiched between the casing and the second mount substrate, and the light of the first wavelength having been emitted from the transmitting semiconductor laser and propagating along the

first principal surface is reflected by the first filter,  
condensed by the lens and emitted as the transmitting light  
along the predetermined axis, and wherein the light of the  
second wavelength as the receiving light having propagated along  
the predetermined axis is condensed by the lens, transmitted by  
the first filter and travels through the communicating hole to  
be received by the receiving photodiode.

16. (Original) The optical transceiver module according to  
Claim 15, comprising a monitoring photodiode mounted on the  
first principal surface of the first mount substrate so as to  
interpose the transmitting semiconductor laser between the first  
filter and the monitoring photodiode, and configured to receive  
backward light from the transmitting semiconductor laser.

17. (Currently amended) The optical transceiver module  
according to Claim 15, comprising a monitoring photodiode  
mounted on the first principal surface of the first mount  
substrate so as to interpose the first filter between the  
transmitting semiconductor laser and the monitoring photodiode,  
and configured to receive light emitted from the transmitting  
semiconductor laser and transmitted by the first filter,  
wherein the monitoring photodiode is obliquely mounted on  
the first principal surface of the mount substrate where a light

receiving surface of the monitoring photodiode faces the first filter.

18. (Original) The optical transceiver module according to Claim 15, wherein the receiving photodiode has a frontside-illuminated type structure.

19. (Original) The optical transceiver module according to Claim 15, wherein a second filter for shutting out the light of the first wavelength is provided on the second principal surface in the region where the communicating hole in the first mount substrate is provided.

20. (Original) The optical transceiver module according to Claim 15, comprising an amplifier mounted on the third principal surface of the second mount substrate and configured to amplify an electric signal from the receiving photodiode.

21-24. (Cancelled)

25. (Original) The optical transceiver module according to Claim 15, comprising a fit portion provided on the first principal surface side of the first mount substrate and



configured to hold a ferrule with an optical fiber therein in a fit state.

26. (Currently amended) An optical transceiver module for emitting transmitting light along a predetermined axis and receiving light having propagated along the predetermined axis, said optical transceiver module comprising:

a mount substrate disposed so as to intersect with the predetermined axis and having first and second principal surfaces facing each other;

a transmitting semiconductor laser mounted on the first principal surface and configured to emit light of a first wavelength;

a receiving photodiode mounted on the predetermined axis and on the second principal surface and configured to receive light of a second wavelength;

a communicating hole provided in a region of the mount substrate intersecting with the predetermined axis, and letting the first and second principal surfaces communicate with each other; and

a first filter disposed on the predetermined axis and in a region intersecting with the first principal surface, and configured to reflect the light of the first wavelength and transmit the light of the second wavelength,

a lens for condensing the transmitting light and the receiving light, said lens being located on the predetermined axis so that the first filter is interposed between the receiving photodiode and the lens; and

a casing for housing the mount substrate;

the casing comprising:

a first casing portion located on the first principal surface side; and

a second casing portion located on the second principal surface side,

wherein the mount substrate is housed in the casing in a state in which the mount substrate is sandwiched between the first casing portion and the second casing portion, and

wherein the light of the first wavelength having been emitted from the transmitting semiconductor laser and propagating along the first principal surface is reflected by the first filter, condensed by the lens and emitted as the transmitting light along the predetermined axis, and wherein the light of the second wavelength as the receiving light having propagated along the predetermined axis is condensed by the lens, transmitted by the first filter and travels through the communicating hole to be received by the receiving photodiode.

27. (New) An optical transceiver module for emitting transmitting light along a predetermined axis and receiving light having propagated along the predetermined axis, said optical transceiver module comprising:

a mount substrate disposed so as to intersect with the predetermined axis and having first and second principal surfaces facing each other;

a transmitting semiconductor laser mounted on the first principal surface and configured to emit light of a first wavelength;

a receiving photodiode mounted on the predetermined axis and on the second principal surface and configured to receive light of a second wavelength;

a communicating hole provided in a region of the mount substrate where the receiving photodiode is mounted, and letting the first and second principal surfaces communicate with each other;

a first filter disposed on the predetermined axis and in a region intersecting with the first principal surface, and configured to reflect the light of the first wavelength and transmit the light of the second wavelength; and

a lens for condensing the transmitting light and the receiving light, said lens being located on the predetermined

axis so that the first filter is interposed between the receiving photodiode and the lens;

wherein the mount substrate is covered by a resin body and the lens is buried in the resin body;

wherein the light of the first wavelength having been emitted from the transmitting semiconductor laser and propagating along the first principal surface is reflected by the first filter, condensed by the lens and emitted as the transmitting light along the predetermined axis, and wherein the light of the second wavelength as the receiving light having propagated along the predetermined axis is condensed by the lens, transmitted by the first filter and travels through the communicating hole to be received by the receiving photodiode.

28. (New) The optical transceiver module according to Claim 27, further comprising a monitoring photodiode mounted on the first principal surface of the mount substrate so as to interpose the first filter between the transmitting semiconductor laser and the monitoring photodiode, and configured to receive light emitted from the transmitting semiconductor laser and transmitted by the first filter,

wherein the monitoring photodiode is obliquely mounted on the first principal surface of the mount substrate so that the

light receiving surface of the monitoring photodiode faces the first filter.

29. (New) The optical transceiver module according to Claim 27, wherein the receiving photodiode has a backside-illuminated type structure.

30. (New) The optical transceiver module according to Claim 29, wherein a second filter for shutting out the light of the first wavelength is provided between the receiving photodiode and the second principal surface of the mount substrate.

31. (New) The optical transceiver module according to Claim 29, wherein the receiving photodiode has a filter layer for absorbing the light of the first wavelength.

32. (New) The optical transceiver module according to Claim 27, comprising an amplifier mounted on the second principal surface and configured to amplify an electric signal from the receiving photodiode.

33. (New) The optical transceiver module according to Claim 27, wherein the mount substrate comprises:

a first substrate including the first principal surface and a third principal surface facing the first principal surface; and

a second substrate including the second principal surface and a fourth principal surface facing the second principal surface,

wherein the mount substrate is formed by assembling the first and second substrates in a state in which the third and fourth principal surfaces face each other.

34. (New) The optical transceiver module according to Claim 27, comprising a fit portion provided on the first principal surface side of the mount substrate and configured to hold a ferrule with an optical fiber therein in a fit state.

35. (New) An optical transceiver module for emitting transmitting light along a predetermined axis and receiving light having propagated along the predetermined axis, said optical transceiver module comprising:

a first mount substrate disposed so as to intersect with the predetermined axis and having first and second principal surfaces facing each other;

a transmitting semiconductor laser mounted on the first principal surface and configured to emit light of a first wavelength;

a communicating hole provided in a region where the predetermined axis intersects with the first mount substrate, and letting the first and second principal surfaces communicate with each other;

a second mount substrate disposed so as to intersect with the predetermined axis and having third and fourth principal surfaces facing each other;

a receiving photodiode mounted on the predetermined axis and on the third principal surface and configured to receive light of a second wavelength;

a first filter disposed on the predetermined axis and in a region intersecting with the first principal surface, and configured to reflect the light of the first wavelength and transmit the light of the second wavelength; and

a lens for condensing the transmitting light and the receiving light, said lens being located on the predetermined axis so that the first filter is interposed between the receiving photodiode and the lens;

wherein the first mount substrate and the second mount substrate are assembled so that the second principal surface faces the third principal surface,

a resin body is placed on the first principal surface of the first mount substrate and the lens is buried in the resin body, and

the light of the first wavelength having been emitted from the transmitting semiconductor laser and propagating along the first principal surface is reflected by the first filter, condensed by the lens and emitted as the transmitting light along the predetermined axis, and wherein the light of the second wavelength as the receiving light having propagated along the predetermined axis is condensed by the lens, transmitted by the first filter and travels through the communicating hole to be received by the receiving photodiode.

36. (New) The optical transceiver module according to Claim 35, comprising a monitoring photodiode mounted on the first principal surface of the first mount substrate so as to interpose the transmitting semiconductor laser between the first filter and the monitoring photodiode, and configured to receive backward light from the transmitting semiconductor laser.

37. (New) The optical transceiver module according to Claim 35, comprising a monitoring photodiode mounted on the first principal surface of the first mount substrate so as to interpose the first filter between the transmitting



semiconductor laser and the monitoring photodiode, and configured to receive light emitted from the transmitting semiconductor laser and transmitted by the first filter,

wherein the monitoring photodiode is obliquely mounted on the first principal surface of the mount substrate so that a light receiving surface of the monitoring photodiode faces the first filter.

38. (New) The optical transceiver module according to Claim 35, wherein the receiving photodiode has a frontside-illuminated type structure.

39. (New) The optical transceiver module according to Claim 35, wherein a second filter for shutting out the light of the first wavelength is provided on the second principal surface in the region where the communicating hole in the first mount substrate is provided.

40. (New) The optical transceiver module according to Claim 35, comprising an amplifier mounted on the third principal surface of the second mount substrate and configured to amplify an electric signal from the receiving photodiode.

41. (New) The optical transceiver module according to Claim 35, comprising a fit portion provided on the first principal surface side of the first mount substrate and configured to hold a ferrule with an optical fiber therein in a fit state.